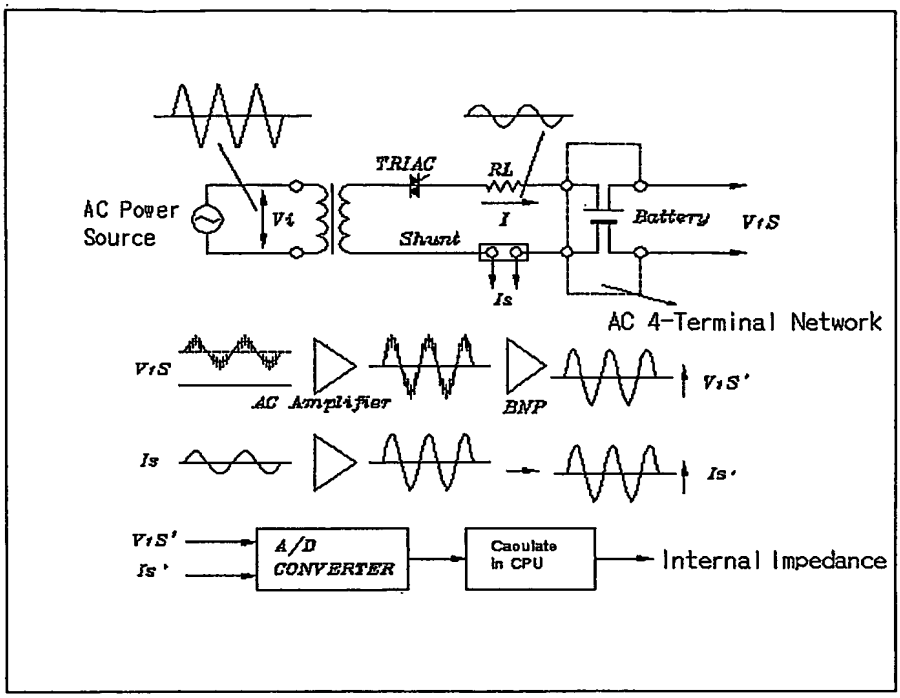
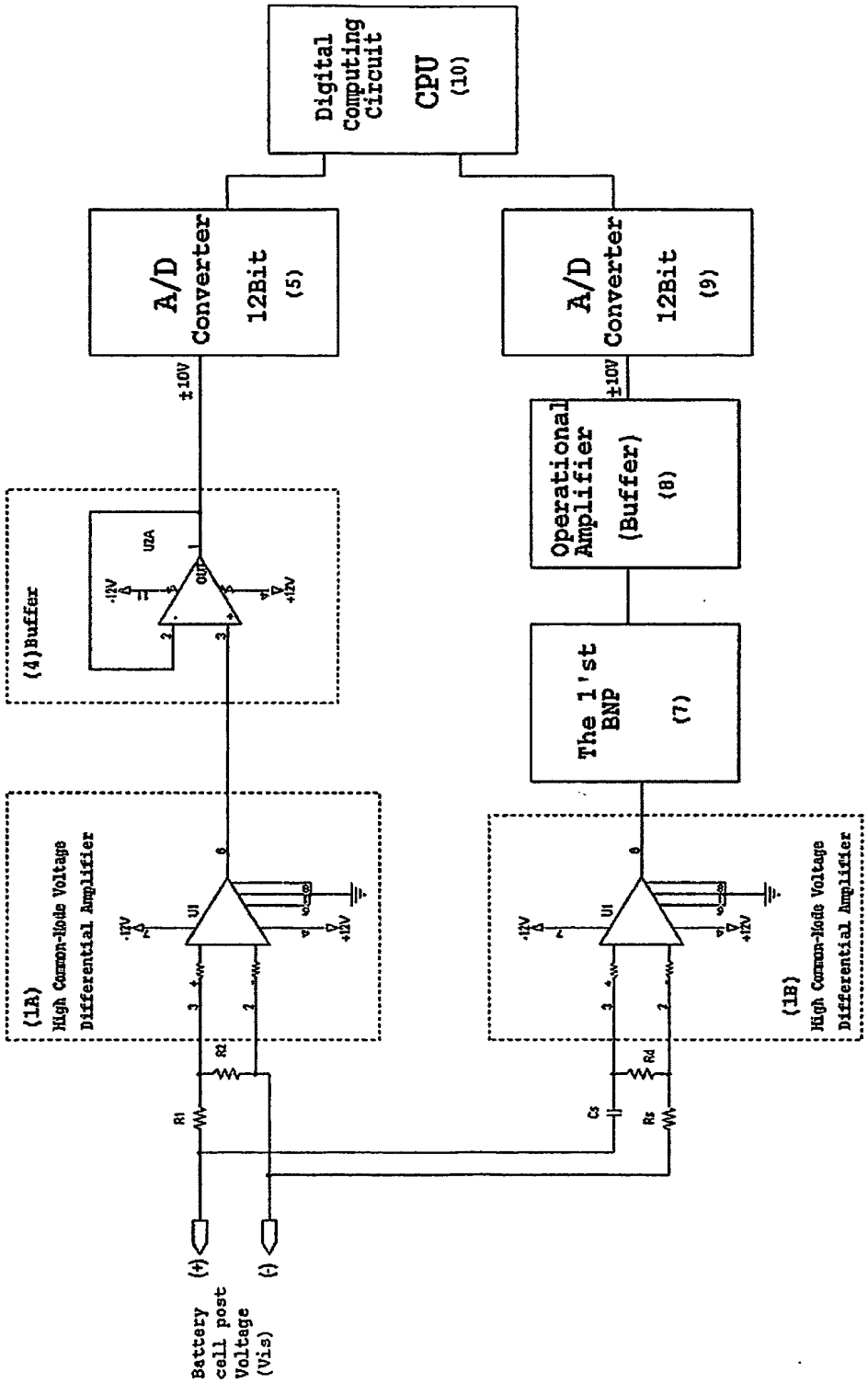
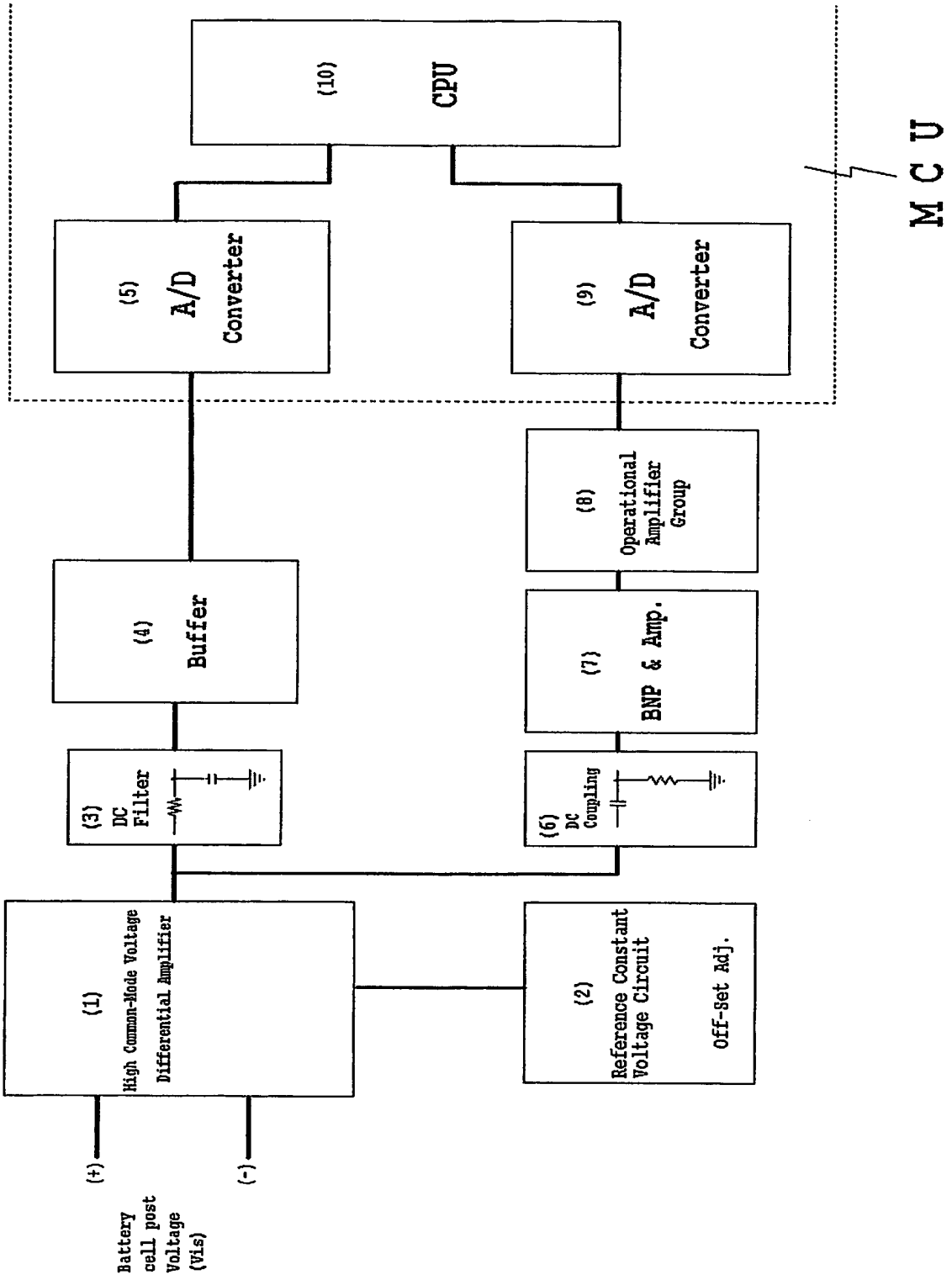
[Fig. 1]


AC Power Source
Vi
TRIAC
RL
I
Shunt
Is
Battery
VtS
AC 4-Terminal Network
VtS
AC Amplifier
BNP
VtS'
Is
Is'
VtS'
Is'
A/D CONVERTER
Caculate in CPU
Internal Impedance

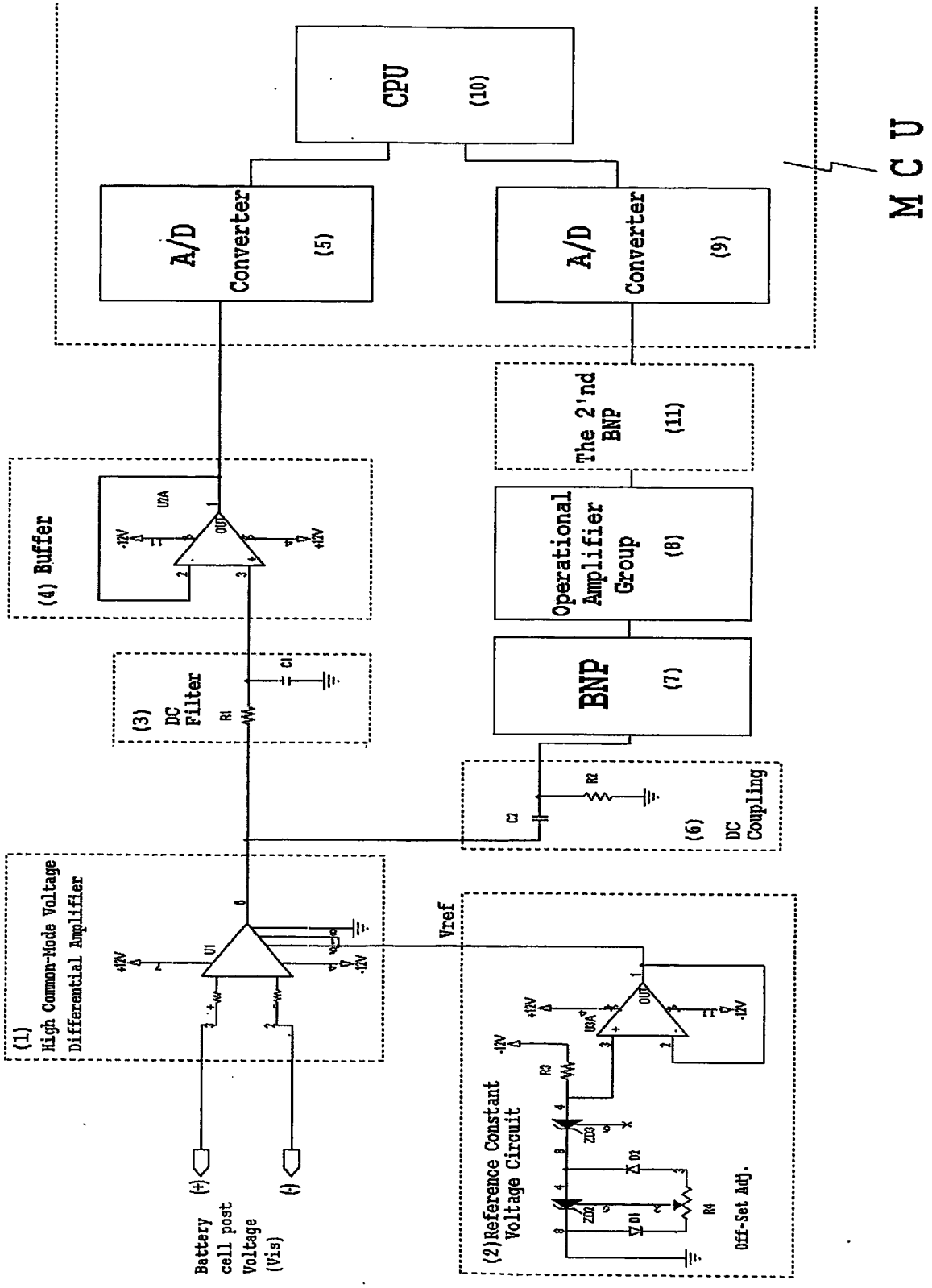
[Fig. 2]


Digital Computing circuit CPU (10)
A/D Converter 12Bit (5)
A/D Converter 12Bit (9)
±10V
±10V
Operational Amplifier (Buffer) (8)
The 1'st BNP (7)
(4)Buffer
U2A
-12V
+12V
OUT
(1A) High Common-Mode Voltage Differential Amplifier
(1B) High Common-Mode Voltage Differential Amplifier
U1
R2
R1
R4
C3
R5
(+)
(-)
Battery cell post Voltage (Vis)

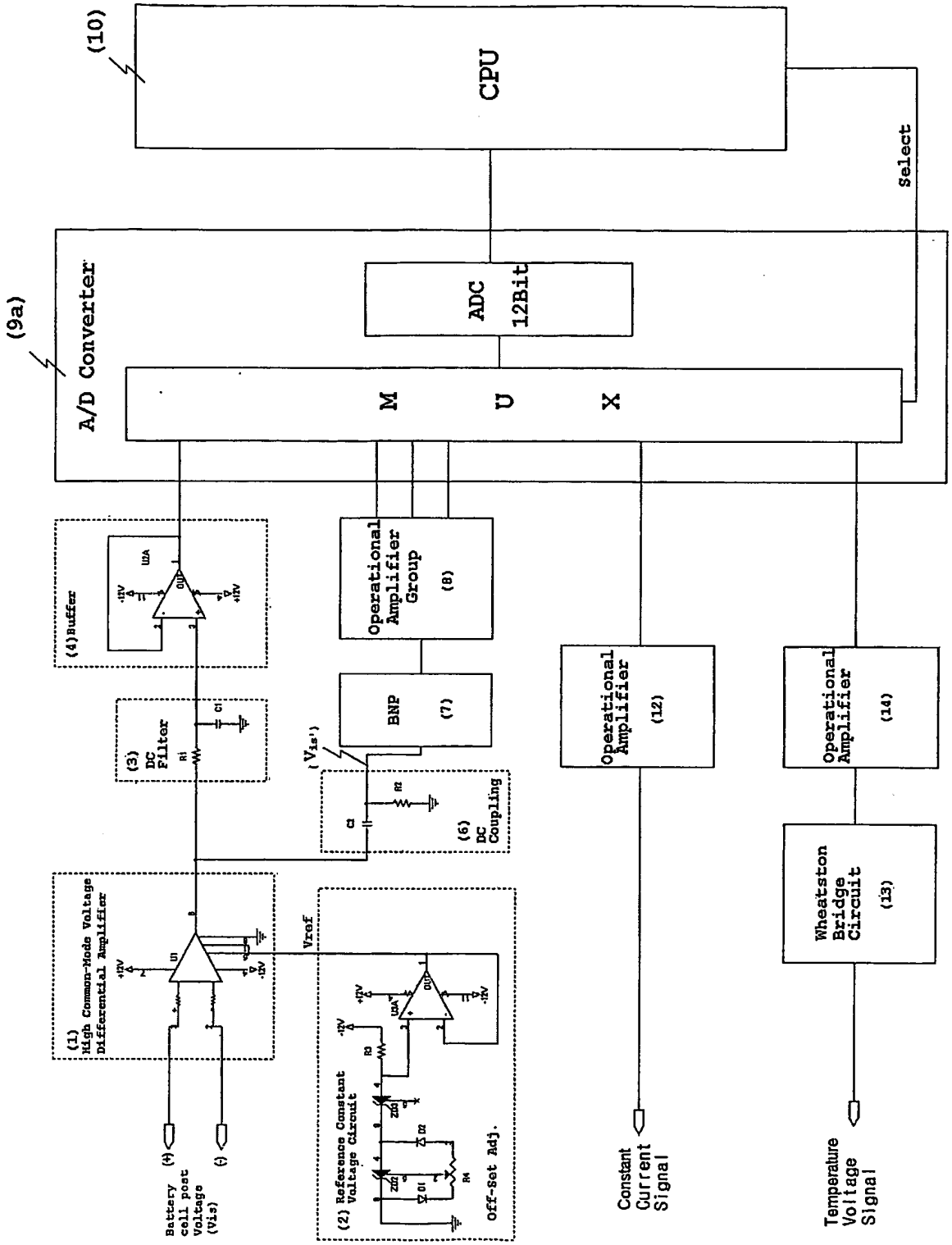
[Fig. 3]


MCU
(10) CPU
(5) A/D Converter
(9) A/D Converter
(4) Buffer
(8) Operational Amplifier Group
(7) BNP & Amp.
(3) DC Filter
(6) DC Coupling
(1) High Common-Mode Voltage Differential Amplifier
(2) Reference Constant Voltage Circuit
Off-Set Adj.
(+)
(-)
Battery cell post Voltage (Vis)

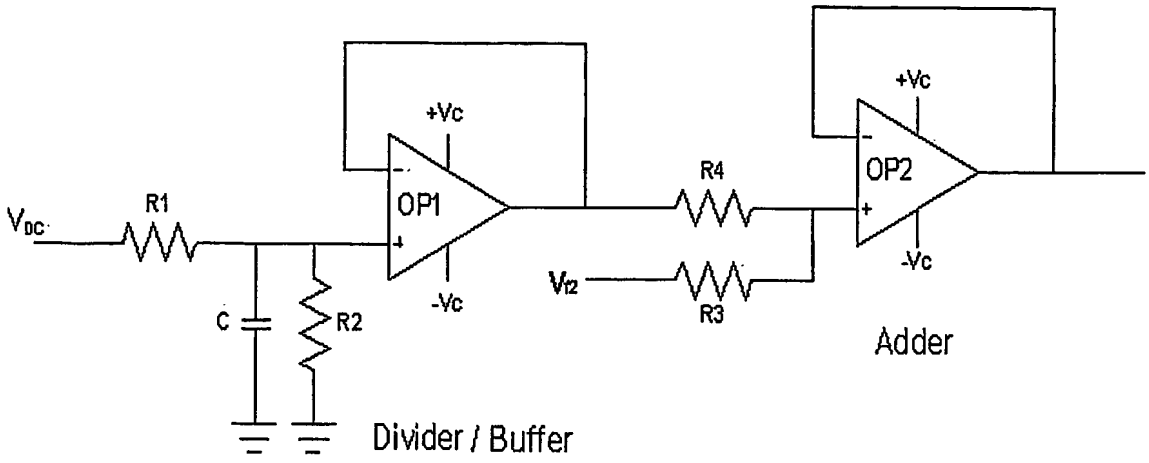
[Fig. 4]


MCU
CPU (10)
A/D Converter (5)
A/D Converter (9)
The 2'nd BNP (11)
Operational Amplifier Group (8)
BNP (7)
(4) Buffer
(3) DC Filter
(6) DC Coupling
(1) High Common-Mode Voltage Differential Amplifier
(2)Reference Constant Voltage Circuit
Vref
Battery cell post Voltage (Vis)
(+)
(-)
OFF-Set Adj.

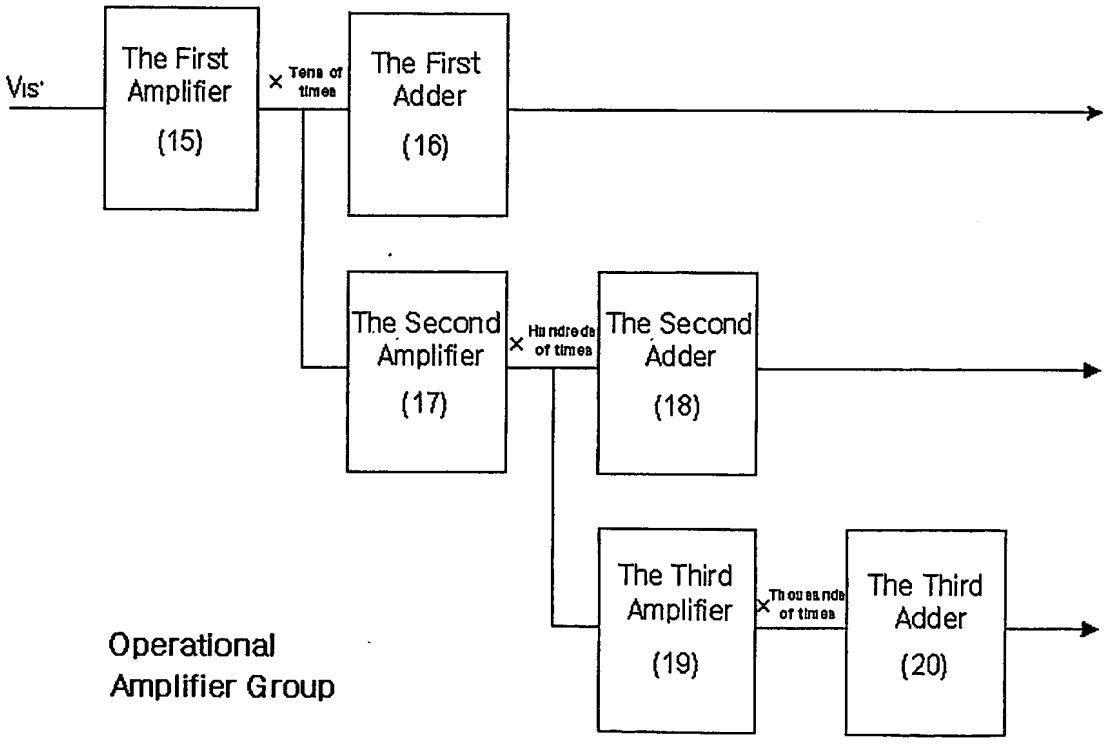
[Fig. 5]


(10)
CPU
Select
(9a)
A/D Converter
ADC 12Bit
M U X
Operational Amplifier Group (8)
BNP (7)
Operational Amplifier (12)
Operational Amplifier (14)
Wheatston Bridge Circuit (13)
(4) Buffer
(3) DC Filter
(6) DC Coupling
(1) High Common-Mode Voltage Differential Amplifier
(2) Reference Constant Voltage Circuit
Off-Set Adj.
Vref
Battery cell post Voltage (Vis)
Constant Current Signal
Temperature Voltage Signal

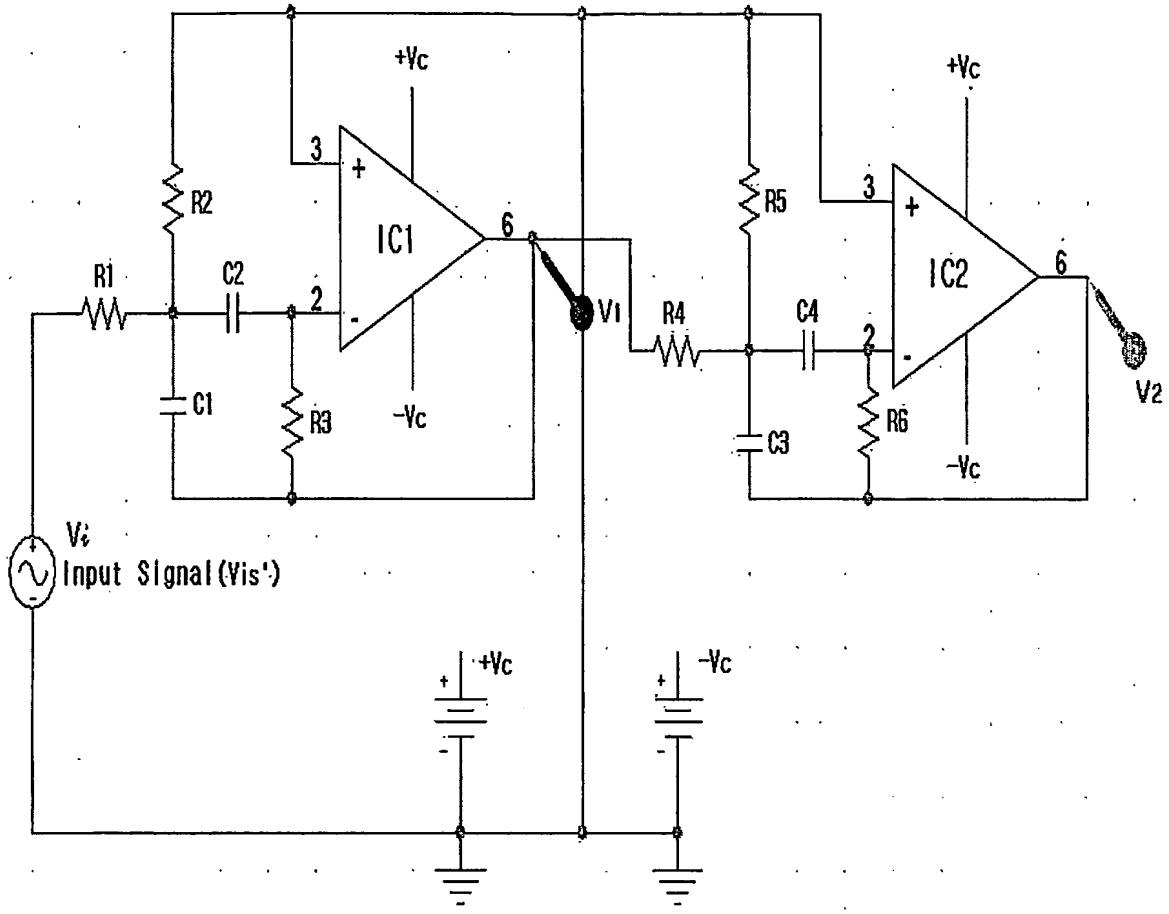
[Fig. 6]


+Vc
OP1
-Vc
R1
V_{DC}
C
R2
Divider / Buffer
R4
V_{f2}
R3
+Vc
OP2
-Vc
Adder

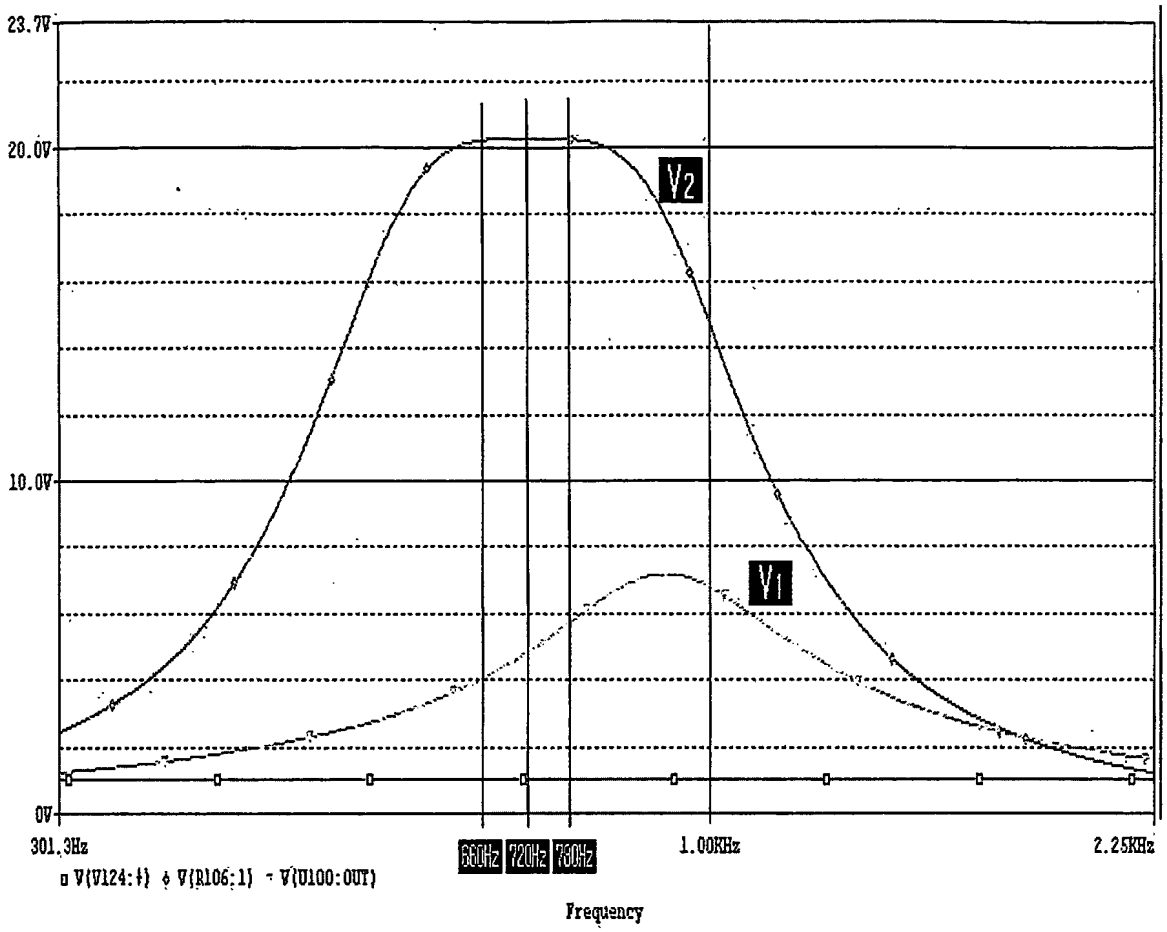
[Fig. 7]


Vis
The First Amplifier (15)
× Tens of times
The First Adder (16)
The Second Amplifier (17)
× Hundreds of times
The Second Adder (18)
The Third Amplifier (19)
× Thousands of times
The Third Adder (20)
Operational Amplifier Group

[Fig. 8]


+Vc
3
+
R2
IC1
6
R1
C2
2
-
Vi
C1
R3
-Vc
Input Signal(Vis')
+Vc
-Vc
V1
R4
R5
C4
C3
+Vc
3
+
IC2
6
2
-
R6
-Vc
V2

[Fig. 9]


23.7V
20.0V
10.0V
0V
V2
V1
301.3Hz
660Hz
720Hz
730Hz
1.00KHz
2.25KHz
V(V124:+) V(R106:1) V(U100:OUT)
Frequency